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SPACE FLIGHT REPORT TO THE NATION
American Rocket Society
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"Our Expanding National Space Program"

Dr. Ritchey, Ladies and Gentlemen:

It is an honor to be at luncheon today with this distinguished group to which the national space program owes so much. The fact that the United States was able to enter the space age four years ago, and that we have come so far since then is, in some large measure, due to the foresight, enterprise, and determination of many of you.

These qualities have been characteristic of the American Rocket Society since its earliest days. Your twelve charter members were thinking far ahead of their times in 1930 when they founded this Society "for promotion of interest in and experimentation toward interplanetary travel."

From the viewpoint of an administrator with responsibility in the space effort, I find it interesting that now, as in the beginning, the American Rocket Society has non-scientists active in its membership. As many of you know,

prime movers in establishing the American Rocket Society were such men as the amateur experimenter and prominent public relations counsellor G. Edward Pendray.

This kind of interest and participation is important in an organization that has such a key role in an enterprise as vast as space exploration, an undertaking with far-reaching implications for the future of the economy, education, the professions, and for the security and general well-being of our country and all mankind.

I wonder, however, if even the founders of the A.R.S. could have envisioned what would grow out of their "space fan club." Who, thirty years ago, could have believed that by 1961 the Society would have evolved into an organization with thousands of members, drawing its leaders from the most advanced disciplines of science and technology, as well as from fields as diverse as industrial management, Congress, and philanthropic foundations?

During the coming years of the nation's accelerated space program the contributions of the A.R.S. can be even more substantial. On the policies you follow, on your drive and effectiveness, rests much of what the nation will do to lift from the realm of dreams to the area of practical things the goal of manned interplanetary travel that your founders envisioned in 1930.

Members of the A.R.S. know the background and accomplishments of the United States space program and of the National Aeronautics and Space Administration. You know better than I do the importance of our National Booster Program and the scientific yields of the fifty-two earth satellites and the deep space probes that the United States has launched, and I believe you understand and appreciate the perception and courage with which President Kennedy has launched us on a new decade of space progress. You will hear more of this from the Vice President on Friday. As Chairman of the National Space Council, he is our best really big "space booster."

The fact that the 1962 space increases were presented by the President and accepted by the Congress on a bipartisan basis shows that as a nation we can still unite in the face of danger and pull together for the clear national interest. Adequacy in space is certainly one such clear interest.

Perhaps it may not be out of place to say that President Kennedy gave me one of the biggest surprises of my life by asking me to head NASA. I tried to tell him that he needed a scientist, an engineer -- someone thoroughly versed in the space sciences, in rocket technology, in satellites and other spacecraft.

But the President insisted that as he viewed the Nation's problems of space, he could not escape a feeling that they were in reality not just scientific or technical, but of broad national and international policy and of the organization of private and government resources to make policy effective.

He stated his conviction that the national space effort is vitally important -- a long-range program which cannot be turned on and off at will. He expressed a strong feeling that, in some large degree, the ability of the United States to achieve its great international goals of peace and fulfillment for all mankind would depend upon what we can achieve in space.

I am here today to report on the actions taken since January 20, and I believe you can accept them as indications of progress.

Based on careful studies made as to military, civilian, and international needs by the senior officials of the Department of Defense, the Atomic Energy Commission, and the National Aeronautics and Space Administration, a program was worked out to develop, build, test, and fly space boosters large enough to accomplish a manned exploration of the moon, and to expedite work in the entire space field. The necessary increases in such areas as space science and technology were incorporated. Plans for the necessary spacecraft, launching, testing, tracking, and recovery facilities were added. The program was examined by the Space Council under the leadership of the Vice President and presented to the Director of the Budget and to the President. Both Majority and Minority leaders on the Senate and House Committees were consulted by the Vice President and the Space Council.

On May 25, the President presented his recommendations for a start on the long-range program to the Congress as a matter of urgency, but as one on which the Congress itself should decide. This Congress did, as I am sure you know, by authorization and by substantial appropriations. But

Paul D. you may not have followed the details sufficiently closely to know that there was a reduction in appropriations of 112 million dollars, and that it was only the day before adjournment that we obtained the necessary flexibility in fund transfers and excepted positions to organize the effort effectively and efficiently.

As soon as it became clear that Congress would approve the program a series of actions were initiated to start the forward motion.

Planning Through three massive computer runs, 2,200 discrete tasks were analyzed using the performance evaluation and review technique to determine that manned lunar exploration was feasible in the 10-year time period.

On the third run we found an acceptable course of immediate action and have initiated a large number of steps to bring it to fruition. However, it is important to recognize that a number of problems are unresolved and await further research and technological advance.

With respect to the utilization of solid propellants or liquid propellants in our largest boosters, we are carrying out development of both for such period as is required to make the necessary evaluation.

With respect to the possibility -- for our most advanced missions -- of building a large space ship out of components placed in orbit around the earth by medium-sized rockets, as against the advantages of using a giant-sized booster of the Nova class, we are proceeding with the necessary fact-finding. We are incorporating in our decisions on programs and facilities the flexibility that will permit us to take advantage of either these or other proposed methods for accomplishing our goal.

We have not subordinated our work in space science to the man in space program, but have instead increased it as a necessary first step in all our programs.

We have not reduced our program for research on scientific and technological problems associated with space which can be conducted here on earth, but have rather increased it where this was the most efficient way to accomplish the desired result.

We have not reduced our work in the areas of aeronautical research and the study of atmospheric flight, but have rather increased and extended it to determine every area in which gains for the space program as well as for manned flight in the atmosphere could be obtained.

We have not instituted what is sometimes called a crash program, but have proceeded at a fast pace through the orderly processes of government, including Congressional examination. We have worked in close coordination with the Department of Defense, the Atomic Energy Commission, the State Department, the Federal Communications Commission, the Department of Commerce, the National Science Foundation, and indeed, all agencies with interest in participation.

We have followed the policy of using existing resources of the nation in such outstanding organizations as the Air Force, the Army and Navy, the Weather Bureau, the Atomic Energy Commission, the National Bureau of Standards, and in universities and industry. We have refrained from jurisdictional bickering.

The results, I believe, speak for themselves.

With respect to the ongoing flight program, we have conducted 11 launches so far during 1961, of which seven were successful. We have conducted not only the first animal and manned suborbital flights, but have gone far to prove the Mercury-Atlas system with a successful unmanned orbital flight and recovery. Perhaps I might also be permitted to mention the following: We have launched the third weather satellite, TIROS III, which reported the daily position of hurricanes and was responsible for the discovery of Hurricane Esther two days earlier than would have been possible by other methods. Among the scientific satellites were Explorer XI which is sending back data on gamma rays emitted from various parts of the heavens, and Explorer XII which is surveying energetic particles over a highly elliptical trajectory varying from less than 200 to nearly 50,000 miles above the surface of the earth.

In the build-up for our national launch vehicle program, we have planned, financed and proceeded to procurement on the newer Saturn configurations to increase performance of the Saturn C-1, and have moved a long way toward fixing the configuration for Nova.

In the Unmanned Space Flight Program, we have added four vehicles to the Ranger series, have scheduled a Mariner flight toward Venus during its next approach to the earth, and have had such successes as those previously mentioned. We have also had our failures but there has been no diminution in the pace of the advance.

With respect to our worldwide tracking facilities, they have been substantially completed and proved out by such flights as the unmanned orbital Mercury-Atlas flight last month. The communications networks and the computer and operational capabilities of our data acquisition, storage and use facilities have met our requirements. We have demonstrated that this worldwide tracking communications and data acquisition network is a priceless national asset.

The backbone or basic structure of the facilities we will need for the research and development associated with manned space flight; and for the fabrication, static test, and launching of either the very large Nova rockets or a larger number of medium rockets, have been planned, locations selected, and arrangements made in most cases for construction and operation. This will permit not only the efficient fabrication and use of the large Nova rockets, if required, but the alternate use of a number of medium-sized rockets in the rendezvous technique to build spacecraft in orbit. Further, it will facilitate bringing into being an efficient transportation network, linking our facilities, which will be capable of handling very large rockets in the proper manner and at the times required. A study of the operating problems and the requirements for efficient use of launch and other facilities in this large and varied program demonstrates the need for linking the fabrication, static test, and launch facilities by such a transportation complex.

With respect to the applications through which space science and technology can begin to yield useful benefits, public policy has been established to speed up a worldwide operational system for communications based on relay satellites. Three important research and development projects have been instituted. These are Project Relay, being developed for NASA by the Radio Corporation of America; the TSX satellite program, through which the American Telephone and Telegraph Company is applying its own resources at its own expense to contribute to an early operational

capability; and the SYNCOM satellites, utilizing the resources of the Hughes Aircraft Company.

All these projects are being carried out in the closest association with the Federal Communications Commission and other interested government departments, as well as with the organizations and interests in other nations concerned in international communications. The principle of privately regulated operation by a grouping of the present carriers has been endorsed, and a strong effort is being made to implement it. However, complete reservation of foreseeable governmental interests has been made. Governmental needs include those relating to international cooperation, worldwide availability of service, and such military needs as can be fulfilled through the use of common carriers.

Arrangements have been made to keep a TIROS weather satellite in orbit at all times until a follow-on system, operated by the United States Weather Bureau, is brought into being. 7

At the President's request, Congress has appropriated funds for the Weather Bureau to initiate the Nimbus satellite meteorological network. This was accomplished only a day or two before the end of the past session. It provides for a major step forward. Meanwhile, an international conference of all nations interested in participating in this new worldwide weather satellite system has been called. It will be held within the next few weeks.

The U.S. Navy has made a large step forward in the applications field through the successful launching of the Transit navigational satellite. Arrangements are now being considered to utilize Transit capabilities to meet the navigational requirements of commercial airplanes and ships.

When I first went over to the State Department in 1949, Bob Lovett cheered me up considerably when he told me that trying to effect a reorganization would be like performing an appendectomy on a man carrying a heavy trunk up three flights of stairs.

The organization problems of the new program in the Space Administration have been no less acute. However, in the past eight months -- based largely on the splendid organizational work and careful studies made by the first NASA Administrator, Dr. Keith Glennan -- we have

established a pattern that is at one and the same time practical and flexible. It takes account of the best abilities of our senior people, establishes strong leadership in our Research and Operational Centers, makes authority and responsibility run together, and provides for a sensitive but effective command and control of the resources required in our space program. You may be interested to know that it also incorporates certain self policing factors that even auditors and accountants and efficiency experts should appreciate.

We have divided our work into four major program categories: 1) advanced research and technology in aeronautics and space; 2) the scientific study of the space environment and celestial bodies by instrumented unmanned satellites and space probes; 3) the applications of earth satellites to such immediate uses as weather observation, global communications, and navigation; and 4) the exploration of space by man. Program directors, within a particular program area, have over-all responsibility for projects, establishing technical guidelines, budgeting and programming funds, scheduling each project, and evaluating progress.

The directors of NASA's research and development centers report directly to the Associate Administrator, Dr. Robert C. Seamans, Jr., and thus have an increased voice in policy making and program decisions.

No statement about aeronautical or space research, or NASA would be complete without a tribute to one of your most distinguished members who is also a member of the National Academy of Sciences. I refer, of course, to Dr. Hugh Dryden.

My first request in my first talk with President Kennedy, speaking for myself and for Vice President Johnson, was that Dr. Dryden be urged to remain as Deputy Administrator. The President enthusiastically agreed, and in planning and carrying out the actions I have described, the judgment and knowledge of this able and devoted public servant has been a main reliance, both in the Executive Branch and in the Congress. As Deputy Administrator and Associate Administrator, he and Dr. Robert Seamans share with me all the burdens and pleasures of NASA's decisions, the building of its team, its successes and its failures. NASA is not a one-man organization and it is decisive and fast-moving.

Each of us respects the other and expects to do his part, using his best talents to continue to press on with our part of the nation's space effort. No one could have finer or more able associates.

Thank you very much.

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